

Lab7: Functions, Function Pitfalls and Programming

Date: 13-9-2025

Work in a separate directory named **Lab7**. You may use **gedit** & Editor (instead of **vi/nano**).

Task1: Carefully explore the provided *L7_functions.c* program. Study each C construct demonstrated in the code, and document in your lab record any constructs or features that are new to you, along with brief notes on your observations.. (20 Points)

Task2: Carefully explore the provided program *L7_function_piftalls*. Examine each C construct and identify the common pitfalls or tricky behaviors illustrated in the code. In your lab record, document the constructs or features that are new or confusing to you, and include brief notes on your observations about why they may lead to errors or unexpected results.

(20 Points)

Task3:

(20 Points)

Write a C program to reverse an array. **Input:** N ($1 \leq N \leq 100$), then N integers.
Output: Reversed array in one line, space-separated.
Use functions:

```
void read_array(int a[], int n);  
  
void reverse_array(int a[], int n);  
  
void print_array(int a[], int n);
```

Example:

Input: 5 and 1 2 3 4 5 **→ Output:** 5 4 3 2 1

Task 4: .

(20 Points)

Write a C program that provides prime-number utilities using functions. Your program must support:

1. Primality test **for a single integer n**
2. List all primes $\leq N$
3. Count primes $\leq N$
4. List all primes in a range $[A, B]$

```
=== PRIMES MENU ===
1) Check primality of n
2) List all primes up to N
3) Count primes up to N )
4) List all primes in [A, B]
0) Exit
Enter choice: 2
N = 37
2 3 5 7 11 13 17 19 23 29 31 37

=== PRIMES MENU ===
1) Check primality of n
2) List all primes up to N
3) Count primes up to N )
4) List all primes in [A, B]
0) Exit
Enter choice: 3
N = 37
pi(37) = 12
```

Task 5:

(20 points)

Write functions for separating odd, even, negative, and positive numbers from a given array, and test these functions with an appropriate program.

In Record

Task 1 and Task 2

Task 3,4 , and 5 : Demonstrate your work to TAs. Submit your code in single file to (roll_number.c file) to

<https://u.pcloud.link/publink/show?code=kZ6LY15ZaDbuG4rBE6khQii7xhqB10poQXDk>